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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/408,323	09/29/99	EBNER	J MTC6610(39-2)

000321 HM12/0925
SENNIGER POWERS LEAVITT AND ROEDEL
ONE METROPOLITAN SQUARE
16TH FLOOR
ST LOUIS MO 63102

EXAMINER

MAIER, J	
ART UNIT	PAPER NUMBER

1623
DATE MAILED: 09/25/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/408,323

Applicant(s)
Ebner et al

Examiner
Leigh Maler

Art Unit
1623



– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jul 3, 2001
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-247 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-247 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirements.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 9
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

Art Unit: 1623

DETAILED ACTION

Status of the Claims

Claims 1, 13, 23, 150-153, and 155 have been amended. Claims 200-247 have been added. Claims 1-247 are pending. Any objection or rejection not expressly repeated has been withdrawn. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5, 11-13, 15-22, and 200-211 are rejected under 35 U.S.C. 102(b) as being anticipated by NITROKEMIA (EP 019445).

NITROKEMIA discloses the oxidation of N-phosphonomethyliminodiacetic acid (PMIDA) with an oxidation catalyst (noble metal on carbon) in the presence of oxygen in an acidic solution to prepare glyphosate. See examples. Formic acid and formaldehyde are introduced into the reaction mixture as they are produced as reaction side products.

Art Unit: 1623

NITROKEMIA discloses the repetitive use of the catalyst for the preparation of glyphosate from PMIDA. The process comprises conducting the process and separating the product from the catalyst by filtration and re-using the catalyst for subsequent cycles. The reference further teaches that the catalytic activity of the recovered catalyst does not significantly decrease even after 10 working cycles. See col 4, lines 33-55.

NITROKEMIA does not characterize the catalyst with regard to the CO yield or atom ratios. However, since the Office does not have the facilities for preparing the claimed materials and comparing them with prior art inventions, the burden is on Applicant to show a novel or unobvious difference between the claimed product and the product of the prior art. See In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980).

In Applicant's remarks in paper no. 10, filed July 3, 2001, assert that a number of the claims, including 1-52, 66-99, and 150-199 require the use of a "deeply reduced" catalyst. Claim 1 recites that the catalyst "...is characterized as yielding no more than about 1.2 mmole of carbon monoxide per gram of catalyst when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant. . ." This passage of the claim describes the result occurring after specific manipulations on a catalyst. It does not require that these manipulations of the catalyst occur before the process for the preparation of glyphosate. Similarly, claim 13, lines 8-13 recite

Art Unit: 1623

“characterization” of the catalyst after particular manipulations. Neither are these manipulations required before the oxidation of PMIDA to glyphosate.

Claim Rejections - 35 U.S.C. § 103

Claims 1-22, 100-105, and 200-211 are rejected under 35 U.S.C. 103(a) as being unpatentable over NITROKEMIA (EP 019445).

The claims are drawn to a continuous process for the preparation of glyphosate from N-phosphonomethyliminodiacetic acid (PMIDA) with an oxidation catalyst (noble metal on carbon) in the presence of oxygen.

NITROKEMIA teaches as set forth above. NITROKEMIA does not teach a continuous process. However, continuous catalytic processes are well-known in the chemical arts. It would have been obvious to one having ordinary skill in the art to have converted the NITROKEMIA batch process to a continuous process. As discussed above, NITROKEMIA teaches that the catalyst is usable over a number of cycles. The artisan would be motivated to conduct a continuous process for uninterrupted production of the product.

In paper no. 10, Applicant disputes the obviousness of a continuous process over a batch process. This argument is not evidence of non-obviousness.

Regarding dependent claims reciting conditions such as the rate of oxygen introduction, it was noted in the previous action that these were result-affecting variables that would be optimized by through routine experimentation. In paper no. 10, it was stated that Applicant reserves the

Art Unit: 1623

right to present further grounds of patentability based on one or more of these further features in the process of the invention. There have been none presented thus far.

Claims 1-247 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of NITROKEMIA (EP 019445) in view of JALAN et al (US 4,186,110) and ITOH (US 5,876,867).

The claims are drawn to a process for the preparation of glyphosate from PMIDA with an oxidation catalyst (noble metal on carbon) in the presence of oxygen. These claims further recite the use of one or more promoters, which may or may not form an alloy with the noble metal, and the treatment of the catalyst at an elevated temperature in a reducing environment.

NITROKEMIA teaches as set forth above.

NITROKEMIA is silent with regard to heating the catalyst with or without the presence of a reducing atmosphere, as recited in the claims. Neither does NITROKEMIA teach the use of a noble metal/carbon catalyst comprising one or more promoters in which the promoter may or may not be alloyed with the noble metal.

JALAN teaches noble metal alloys (alloys with other noble metals or with a variety of base metals, such as Ti and Al), supported on carbon, as catalysts. JALAN teaches that particular steps in the preparation of these catalysts, including heating to temperatures ranging up to about 1000°C in a reducing atmosphere. See particularly the abstract, the examples, and col 5, line 51-68. Although the discussion in JALAN centers on the use of the catalysts in fuel cells, JALAN

Art Unit: 1623

expressly teaches that these catalysts also find application in chemical processes. See sentence bridging col 3 and 4.

ITOH teaches similar catalysts to JALAN which are prepared at a high temperature in a reducing atmosphere to alloy a wide variety of base metals, such as Ga, V, Cr, Mn, Fe, Co, Ni, Cu, with platinum on a carbon support. ITOH teaches that catalysts thus prepared have a longer lifetime due to less leaching out of noble metal from the catalyst. See abstract and col 2-3.

It would have been obvious to one having ordinary skill in the art to have altered the catalysts of NITROKEMIA by the process of JALAN, by heating the catalyst in a reducing environment, for the preparation of glyphosate from PMIDA for the increased activity imparted onto the catalyst by this process. It would further be within the scope of the artisan to determine the optimum promoter metal through routine experimentation. With regard to other result-affecting variables, such as temperature for preparing catalyst and time in reactor, see discussion above.

Finally, Applicant has presented a very large number of claims directed to functional limitations--atom ratios, surface layer thickness, resistance to noble metal dissolution, amount of formaldehyde in the product mixture, particle size, etc.--describing the catalyst and process. As set forth above, the claims are drawn a process that is obvious over NITROKEMIA in view of JALAN and ITOH. As such, the artisan would have a reasonable expectation that the resulting catalyst and process would have the same characteristics.

Art Unit: 1623

Conclusion

Any arguments presented in paper no. 10 not addressed herein have been considered, but are considered moot in light on new grounds of rejection.

Applicant's argument with regard to obvious double patenting is correct. However, with a view toward eventual allowance and accompanying maintenance fees of both the instant application (specific process) and co-pending 09/408,296 (generic process), Applicant may want to consider abandoning one application and prosecute all the claims a single application.

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on July 3, 2001 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1623

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Examiner's hours, phone & fax numbers


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leigh Maier whose telephone number is (703) 308-4525. The examiner can normally be reached on Tuesday, Wednesday, and Friday 7:00 to 3:30 (ET).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Gary Geist (703) 308-1701, may be contacted. The fax phone number for Group 1600, Art Unit 1623 is (703) 308-4556 or 305-3592.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 1600 receptionist whose telephone number is (703) 308-1235.

Visit the U.S. PTO's site on the World Wide Web at <http://www.uspto.gov>. This site contains lots of valuable information including the latest PTO fees, downloadable forms, basic search capabilities and much more.

Leigh C. Maier
Patent Examiner
September 21, 2001


Kathleen Kahler Fonda
Primary Examiner
Art Unit 1623